Engineering Interpretations

Soil Features

This table gives estimates of several important soil features which are used in land use planning that involves engineering considerations. Soil features which are covered include bedrock depth and hardness, cemented pan depth and hardness, subsidence, potential frost action, and risk of corrosion for uncoated steel or for concrete.

DEPTH TO BEDROCK - This value is given if bedrock is with a depth of 60 inches. The depth is based on many soil borings and observations made during soil mapping. The rock is specified as either soft or hard. If the rock is soft, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

CEMENTED PAN - Cemented pan is a nearly continuous layer of indurated or strongly cemented material having a hard, brittle consistency because the particles are held together by cementing substances such as, calcium carbonate, or oxides of silicon, iron, or aluminum. These layers are identified when they occur within a depth of 60 inches. Pans are classified as "thin" or "thick." "Thin" cemented pans are thin enough so that excavations can be made with trenching machines, backhoes, or small rippers and other equipment common to construction of pipelines, sewer lines, cemeteries, and the like. "Thick" cemented pans are sufficiently thick or massive to require blasting or special equipment beyond which is considered normal in excavating for this type of construction.

SUBSIDENCE - Subsidence potential is the maximum possible loss of surface elevation from the drainage of wet soils having organic layers or semi-fluid mineral layers. Estimates of the depth of subsidence (in inches) that takes place soon after drainage (initial subsidence) and after oxidation (total subsidence) are given for soils that are likely to subside.

POTENTIAL FROST ACTION - This is the likelihood of upward or lateral movement of soil by the formation of segregated ice lenses (frost heave) and the subsequent loss of soil strength upon thawing. The following classes are used in regions where frost action is a potential problem: (1) Low -- soils are rarely susceptible to the formation of ice lenses, (2) Moderate -- soils are susceptible to the formation of ice lenses, resulting in frost heave and subsequent loss of soil strength, and (3) High -- soils are highly susceptible to the formation of ice lenses, resulting in frost heave and subsequent loss of soil strength.

RISK OF CORROSION - Various metals and other materials corrode when on or in the soil, and some metals and materials corrode more rapidly when in contact with specific soils than when in contact with others. Corrosivity ratings are given for two of the common structural materials, uncoated steel and concrete. The risk of corrosion classes are low, moderate, and high.

This subsection includes:

- **(a) Soil Features**

Cedar County, Missouri
Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
40000:									
Barden	---	---	---	---	0	0	None	High	Moderate
40001:									
Bolivar	Bedrock (paralithic)	20-40	0-8	Strongly cemented	0	0	None	Low	Moderate
	Bedrock (lithic)	30-60	---	Very strongly cemented					
40004:									
Barden	---	---	---	---	0	0	None	High	Moderate
40005:									
Sylvania	Bedrock (paralithic)	40-60	6-40	Moderately cemented	0	0	None	Low	Moderate
40006:									
Barco	Bedrock (paralithic)	20-40	2-60	Moderately cemented	0	0	None	Low	Moderate
Sylvania	Bedrock (paralithic)	40-60	4-40	Moderately cemented	0	0	Moderate	High	High
40007:									
Eldorado	---	---	---	---	0	0	None	High	Moderate
40008:									
Parsons	---	---	---	---	0	0	None	High	Moderate
40009:									
Sylvania	Bedrock (paralithic)	40-60	---	---	0	0	None	Low	Moderate

Cedar County, Missouri
Soil Features

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Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
40010:									
Collinsville	Bedrock (lithic)	4-20	---	Very strongly cemented	0	---	None	Low	Moderate
Rock outcrop	---	---	---	---	---	---	---	---	---
44001:									
Quarles	---	---	---	---	0	---	None	High	Moderate
46000:									
Humansville	---	---	---	---	0	0	None	High	Low
66000:									
Moniteau	---	---	---	---	0	0	High	High	High
66001:									
Dameron	---	---	---	---	0	0	Moderate	Low	Low
70000:									
Bona	Bedrock (lithic)	60-80	---	Indurated	0	0	Moderate	High	Moderate
70001:									
Bona	Bedrock (lithic)	60-80	---	Indurated	0	0	Moderate	High	Moderate
70002:									
Alsup	Bedrock (paralithic)	40-60	---	Weakly cemented	0	0	Moderate	High	Moderate
70003:									
Alsup	Bedrock (paralithic)	40-60	---	Weakly cemented	0	0	Moderate	High	Moderate
70004:									
Alsup	Bedrock (paralithic)	40-60	---	Weakly cemented	0	0	Moderate	High	Moderate

Cedar County, Missouri
Soil Features

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Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
70006:									
Creldon	Fragipan	18-35	6-30	Noncemented	0	0	Moderate	High	High
70007:									
Cliquot	Bedrock (paralithic)	40-60	4-40	Moderately cemented	0	0	Moderate	High	High
70008:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
70009:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
70010:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
70011:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
Moko	Bedrock (lithic)	4-20	---	Indurated	0	0	None	Low	Low
70012:									
Hoberg	Fragipan	20-36	11-35	Noncemented	0	0	Moderate	Moderate	High
70014:									
Moko	Bedrock (lithic)	4-20	60-76	Indurated	0	0	None	Low	Low
Rock outcrop	Bedrock (lithic)	0-0	80-80	Indurated	0	0	---	---	---
70040:									
Cliquot	Bedrock (paralithic)	40-60	4-40	Moderately cemented	0	0	Moderate	High	High
Bolivar	Bedrock (paralithic)	20-40	10-20	Moderately cemented	0	0	None	Low	Moderate

Cedar County, Missouri
Soil Features

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Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
70041:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
70042:									
Goss	---	---	---	---	0	0	Moderate	Moderate	Moderate
70043:									
Sonsac	Bedrock (lithic)	20-40	40-60	Indurated	0	0	Moderate	Moderate	Moderate
Moko	Bedrock (lithic)	4-20	60-76	Indurated	0	0	None	Low	Low
Rock outcrop	Bedrock (lithic)	0-0	60-80	Indurated	0	0	None	---	---
70044:									
Sonsac	Bedrock (lithic)	20-40	40-60	Indurated	0	0	Moderate	Moderate	Moderate
Moko	Bedrock (lithic)	4-20	60-76	Indurated	0	0	None	Low	Low
70047:									
Wanda	---	---	---	---	0	0	Moderate	Low	Moderate
70048:									
Alsup	Bedrock (paralithic)	40-60	4-40	Moderately cemented	0	0	Moderate	High	Moderate
70052:									
Arnica	---	---	---	---	0	0	Moderate	Moderate	High
70053:									
Courtois	---	---	---	---	0	0	Moderate	High	Moderate
70054:									
Cliquot	Bedrock (paralithic)	40-60	---	Moderately cemented	0	0	Moderate	High	High
71254:									
Cotter	---	---	---	---	0	0	High	Moderate	Moderate

Cedar County, Missouri
Soil Features

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Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
71750:									
Cleora	---	---	---	---	0	---	None	Low	Moderate
73000:									
Pomme	---	---	---	---	0	0	Low	Moderate	Moderate
73003:									
Ocie	Bedrock (lithic)	40-60	---	Indurated	0	0	Moderate	High	Moderate
Gatewood	Bedrock (lithic)	20-40	---	Indurated	0	0	Moderate	High	Moderate
73005:									
Ocie	Bedrock (paralithic)	40-60	---	Indurated	0	0	Moderate	High	Moderate
73007:									
Plato	Fragipan	24-36	6-36	Noncemented	0	0	Moderate	High	High
73008:									
Viraton	Fragipan	18-33	8-30	Noncemented	0	0	Moderate	Moderate	High
73059:									
Pomme	---	---	---	---	0	0	Low	Moderate	Moderate
73075:									
Hobson	Fragipan	18-27	6-24	Noncemented	0	0	Moderate	Moderate	High
74625:									
Hartville	---	---	---	---	0	0	High	Moderate	Moderate
74641:									
Secesh	---	---	---	---	0	0	Moderate	Low	Moderate
75375:									
Horsecreek	---	---	---	---	0	0	High	Low	Low

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Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
75377:									
Racket	---	---	---	---	0	0	Moderate	Moderate	Low
75378:									
Sturkie	---	---	---	---	0	0	None	Low	Low
99000:									
Pits, quarries	---	---	---	---	0	0	---	---	---
99001:									
Water	---	---	---	---	---	---	---	---	---
99004:									
Kanima	---	---	---	---	0	0	None	Moderate	Low
99007:									
DAM	---	---	---	---	---	---	---	---	---